Remarks

Amendments to the Claims

Claim 1 is amended to recite "comparing the test gene copy number to data for a WIP1 control gene copy number to detect WIP1 gene amplification" and a step of "identifying the breast tissue sample as cancerous if there is amplification of the WIP1 gene in the breast tissue sample." These amendments are supported throughout the specification, *e.g.*, in the section beginning on page 41 of the specification ("Amplification of WIP1 Gene in Tumors"). The amendments do not add new matter.

Rejection of Claims 54 and 56 Under 35 U.S.C. § 112 ¶1 and § 112 ¶2

Claims 54 and 56 stand rejected as insufficiently described because "the specification does not teach a gene which 'comprise[s]' or 'has' the indicated SEQ ID NO, which is a CDS and excludes introns." Office Action at page 5 lines, 16-17. The same recitation is cited as rendering claims 54 and 56 indefinite. Office Action at page 3 ¶ 2. To advance prosecution, claims 54 and 56 are canceled.

Rejection of Claims 1, 3, 54, 56-59, and 61-63 Under 35 U.S.C. § 112 ¶ 1

Claims 1, 3, 54, 56-59, and 61-63 stand rejected as not enabled. Claims 54 and 56 have been canceled. Applicants respectfully traverse the rejection of claims 1, 3, 57-59, and 61-63.

The Office Action acknowledges that the specification enables "a method of diagnosing breast cancer in a human comprising detecting and measuring gene copy number of the WIP1 gene which encodes the transcript of SEQ ID NO:1 in a breast tissue sample from the human . . . ." but contends that the specification does not enable the full scope of the recitation "WIP1

gene." Office Action at page 6. The Office Action bases this rejection on the specification's definition of "WIP1" in the paragraph bridging pages 21 and 22 of the specification. Paragraph bridging pages 7 and 8 of the Office Action. That paragraph is set forth below (emphasis added):

> The term "WIP1" refers to WIP1 nucleic acid (DNA and RNA), protein (or polypeptide), and ***can*** include their polymorphic variants, alleles, mutants, and interspecies homologs that have (i) substantial nucleotide sequence homology with the nucleotide sequence of the GenBank entry AAB61637 (human WIP1); or (ii) at least 65% sequence homology with the amino acid sequence of the SWISS-PROT record O15297 (Protein Phosphatase 2C δ Isoform); or (iii) substantial nucleotide sequence homology with the nucleotide sequence as set forth in SEQ ID NO: 1; or (iv) substantial sequence homology with the encoded amino acid sequence.

As the specification indicates, "WIP1" ***can*** include polymorphic variants, alleles, mutants, and interspecies homologs, and the like. The plain language of independent claim 1, however, states that the recited "WIP1 gene" is the WIP1 gene present in a breast tissue sample ***of a human***. It is a fundamental rule of claim construction that every limitation is material and that what is claimed is what is defined by the claim as a whole. *General Foods Corp. v. Studiengesellschaft Kohle GmbH*, 972 F.2d 1272, 1280, 23 U.S.P.Q.2d 1839, 1345 (Fed. Cir. 1992). The human origin of the recited WIP1 gene limits the nucleotide sequence of the gene to that which is naturally present in human tissues. Human WIP1 coding sequences are known in the art and do not greatly differ from SEQ ID NO:1. See the BLAST alignments of SEQ ID NO:1 with several GenBank entries for human WIP1 shown in Attachments 1-5 and summarized in the table below:

GenBank #	Identification	percent identity with SEQ ID NO:1 (1818 nucleotides)
NT_010783.14	*H. sapiens* chromosome 17 genomic contig, reference assembly	100% for each of 6 contigs (1828 nucleotides total)
NW_926907.1	*H. sapiens* chromosome 17 genomic contig (Celera assembly)	100% for each of 6 contigs (1828 nucleotides total)
BC042418.1	*H. sapiens* cDNA clone MGC:35090	100% over nucleotides 147-1406 and 100% over nucleotides 1515-2075 (1820 nucleotides total)
BC033893.2	*H. sapiens* cDNA clone MGC:33257	99% over nucleotides 107-1924 (1818 nucleotides)
BC016480.1	*H. sapiens* cDNA clone MGC:17321	100% over nucleotides 149-1966 (1818 nucleotides)

In particular, the last three entries in the table indicate that the WIP1 coding sequence present in three different human cDNA clones is highly conserved. There is simply no basis for concluding it would require undue experimentation to practice the method as claimed.

Please withdraw the rejection.

Rejections Under 35 U.S.C. § 102(b)

The Office Action rejects claims 1, 3, 54, 56, 57, 61, and 62 under 35 U.S.C. § 102(b) over each of Kallioniemi[1] and Orsetti,[2] each as evidenced by Wu[3] and GenBank Accession number NM_003620. Claims 54 and 56 are canceled. Applicants respectfully traverse the rejections of claims 1, 3, 57, 61, and 62.

To reject a claim as anticipated, each and every element as set forth in the claim must be found, either expressly or inherently described, in a single prior art reference. *Verdegaal Bros. v.*

[1] Kallioniemi *et al.*, *Proc. Natl. Acad. Sci. USA 91*, 2156-60, March 1994.

[2] Orsetti *et al.*, *Oncogene 18*, 6262-70, 1999.

[3] Wu *et al.*, *Cancer Res. 61*, 4951-55, July 2001.

Union Oil Co. of California, 814 F.2d 628, 631 (Fed. Cir. 1987). Applicants' previous response explained that neither Kallioniemi nor Orsetti provides any guidance for associating amplification of any of the genes located within the 17q22-24 region (Kallioniemi) or 17q22-q24 and 17q21-qter regions (Orsetti) with a breast cancer, let alone a disclosure associating amplification of WIP1 with a breast cancer. The Examiner was not persuaded because, as the Office Action notes, "[t]he claims only require detecting and measuring gene copy number of a WIP1 gene in a breast tissue and comparing it to a control gene copy number." Office Action at page 13, first full paragraph; paragraph bridging pages 15 and 16 of the Office Action.

To advance prosecution, Applicants have amended independent claim 1 to recite "comparing the test gene copy number to data for a WIP1 control gene copy number to detect WIP1 gene amplification" and a step of "identifying the breast tissue sample as cancerous if there is amplification of the WIP1 gene in the breast tissue sample." Neither Kallioniemi nor Orsetti teaches this subject matter. Neither Kallioniemi nor Orsetti anticipates independent claim 1 or dependent claims 3, 57, 61, and 62.

Please withdraw the rejections.

Rejections Under 35 U.S.C. § 103(a)

The Office Action maintains the rejections of claim 58 over Orsetti in view of Backman[4] and the rejection of claim 63 over Kallioniemi or Orsetti, each in view of Pinkel.[5] Applicants respectfully traverse the rejection.

Neither Kallioniemi nor Orsetti teaches or suggests a step of "identifying the breast tissue sample as cancerous if the WIP1 gene in the breast tissue sample is amplified relative to the

[4] Backman, U.S. Patent 5,516,663.

[5] Pinkel *et al.*, *Nature Genetics 20*, 207-11, 1998.

control WIP1 gene copy number," as recited in amended claim 1 (and therefore incorporated into dependent claims 58 and 63). Neither Backman nor Pinkel remedies this deficiency. Thus, neither of the sets of combined references teaches or suggests all the claim limitations. There is no *prima facie* case that either claim 58 or claim 63 is obvious.

Please withdraw the rejections.

Respectfully submitted,
BANNER & WITCOFF, LTD.

/Lisa M. Hemmendinger/

Dated: July 17, 2007 By: _____
Lisa M. Hemmendinger
Registration No. 42,653

Customer No. 22907